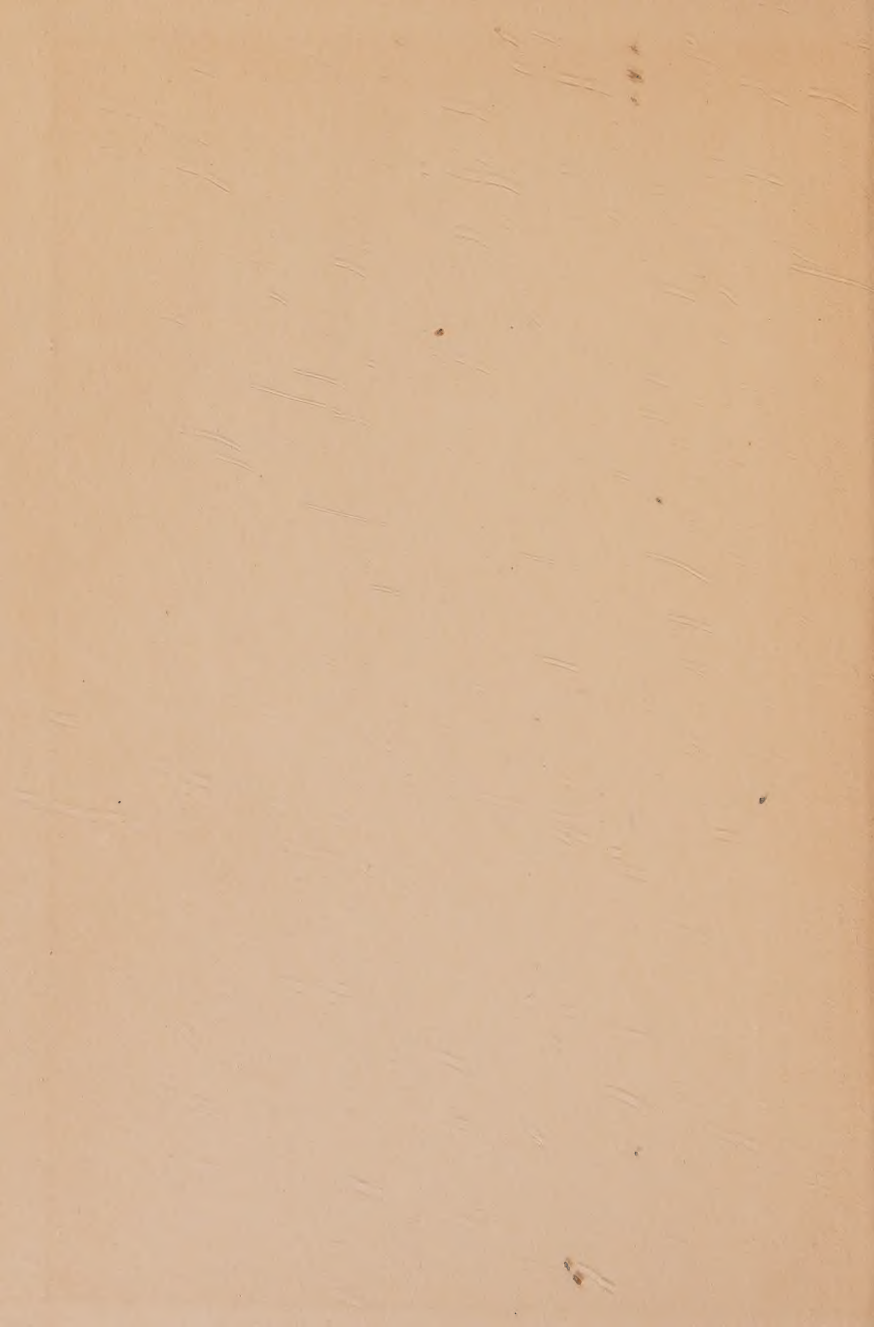
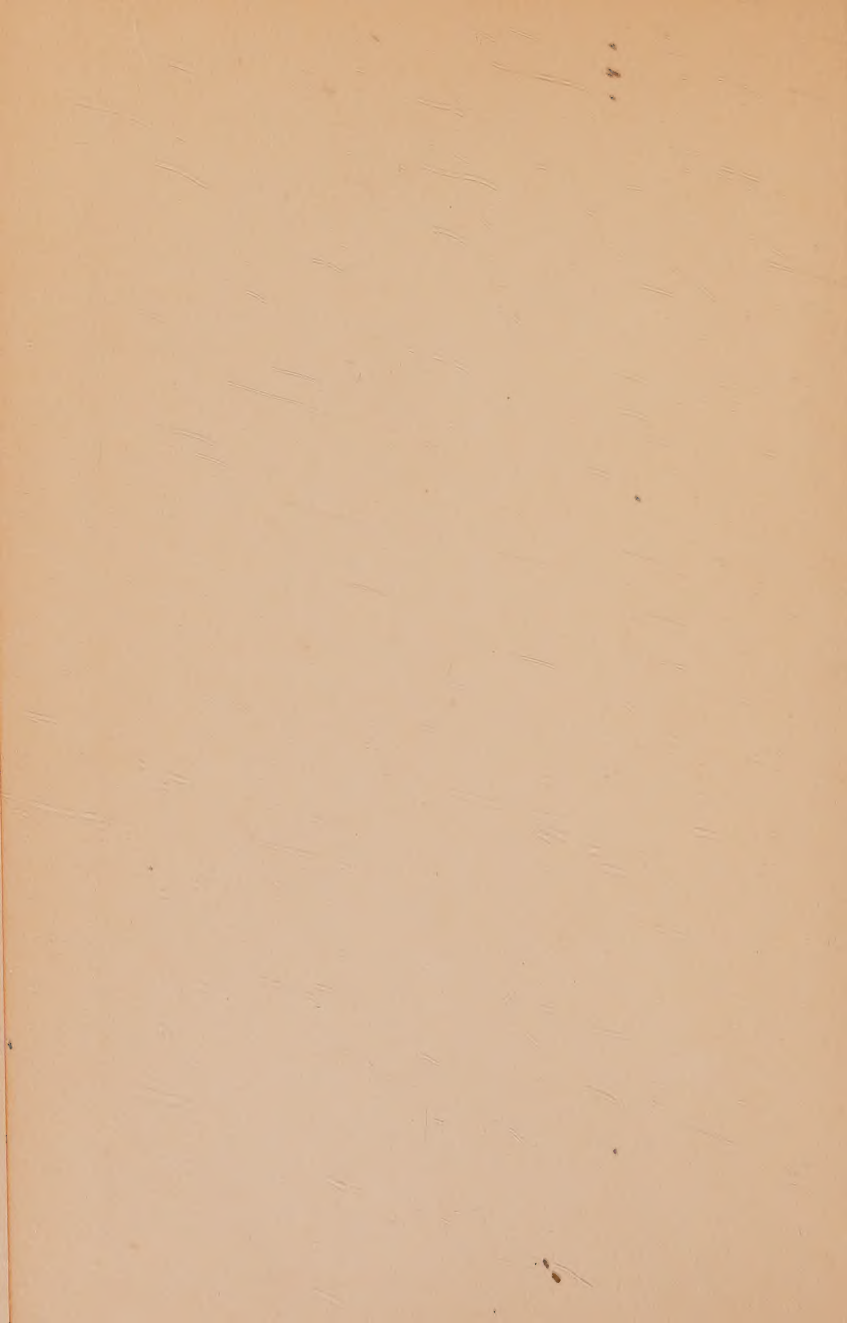




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C O L D S
CAUSE, TREATMENT
AND PREVENTION



COLDS

CAUSE, TREATMENT AND PREVENTION

BY

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NEW YORK CITY



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IN this book the author has endeavored to explain in simple language a subject which is of interest to the great majority of mankind. Very few people are entirely free from colds. Many are highly susceptible to them and are miserable for the greater part of the winter and spring with various forms of respiratory infection. It is for these sufferers that this book has been written, in the hope that by giving them a clearer understanding of the predisposing and exciting causes of colds, they may be in a position to handle them intelligently when they do develop or, better still, to prevent their occurrence altogether.

RUSSELL L. CECIL, M.D.



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C O L D S
CAUSE, TREATMENT
AND PREVENTION



COLDS: CAUSE, TREATMENT AND PREVENTION

CHAPTER I

INTRODUCTION

THE modern physician has learned that the prevention of serious disease is dependent in large part on controlling the minor ailments which nearly always precede them. To prevent tuberculosis he must prevent malnutrition; to prevent cancer he must prevent chronic inflammation; to prevent pneumonia and a host of other infections he must prevent the common cold.

The common cold is an ailment which we are apt to look upon rather lightly, but it is so often the preface to graver diseases that its prevention and treatment cannot be regarded too seriously.

Not only pneumonia and pleurisy, but meningitis, mastoiditis, infection of the sinuses, bronchitis and asthma are usually traceable to preceding colds. Some of the chronic infectious diseases such as pulmonary tuberculosis and chronic arthritis often date their onset to the same cause.

The object of this book is to acquaint the layman with the cause, prevention, and treatment of the common cold, in the hope that by giving him a clearer understanding of the predisposing and exciting causes of colds he may be in a position to prevent their occurrence or to handle them intelligently when they do develop.

In no sense is this book intended as a substitute for the family physician, nor has any effort been made to describe the myriad treatments for colds that are recommended the world over. Literally everything has been advocated, from mustard foot baths to standing on the head! Most of these treatments do no harm, many do good, and in nearly every instance they will be found to be merely different methods of achieving the same effect. For instance, in most cases it is advisable to produce a perspiration. Whether one accomplishes

this by hot drinks, Dover's powder, or a Turkish bath is inconsequential so long as the result is satisfactory. The treatments outlined in this book are those which the writer has found by personal experience to be most efficacious, and which are most easily applied by the layman.

Colds are so varied in type that some understanding of the mechanism of the respiratory apparatus is necessary to an intelligent understanding of their cause, course, and termination. We must never forget that the respiratory tract is made up of many different parts, all intimately connected, so that when one area becomes infected it is a very simple matter for the process to spread to adjacent areas. We are also coming to realize that colds are of different kinds; some are contagious, some are non-contagious. Some are purely local, others involve both nose and throat, and still others spread over the entire respiratory tract before finally running their course.

Grip and influenza, while not strictly classifiable as colds, are so frequently mistaken for colds that a consideration of them is necessary in any treatise of this nature. Early medical attention is essential,

and self-treatment, except in cases where it is impossible to get a doctor, should be discouraged.

The subject of colds is treated from two angles: (1) Cause and treatment; (2) Prevention, which should be regarded as the more important phase of the subject. It is only human nature to "lock the stable door after the horse is stolen," and it will always be harder to make the healthy man try to *keep* well than to make the sick man try to *get* well. Prevention, however, is the aim of modern medicine, and it is now generally recognized that the actual curing of a cold is the least important part of the treatment—prevention of recurrences is the prime essential. Even those who are subject to constantly recurring colds do not often consider them a serious enough affliction for medical advice. They are content to be uncomfortable for a few days and let nature take its course, trusting to luck to escape another attack. The recurring cold, however, is nearly always traceable to some definite cause.

In this book the mechanism of the respiratory tract is fully explained and the predisposing and exciting causes of colds are thoroughly gone into.

Those who are subject to frequent colds should not accept this condition of affairs complacently, but should make every effort to remove the *cause*, and the cure will then take care of itself.

CHAPTER II

STRUCTURE AND FUNCTION OF THE NOSE AND THROAT

“**W**HY do we get colds?” asks the layman. A simple enough question, but one that has baffled many of the wisest minds. For a more thorough understanding of the question it is necessary to know something of the mechanism of the respiratory system with its numerous ramifications and its many allied functions. The respiratory tract is a complicated structure which begins with the nostrils and ends in the terminal branches of the bronchial tree. It is lined throughout with a soft velvet-like membrane called mucous membrane, which is similar in structure to skin but much more delicate.

Figures 1 and 2 show in more or less diagrammatic form the arrangement of the various parts of the respiratory tract. Figure 1 is a profile view. Figure 2 is a transverse section which serves to

bring out the relations of certain parts not indicated in Figure 1. As shown in the drawings, each

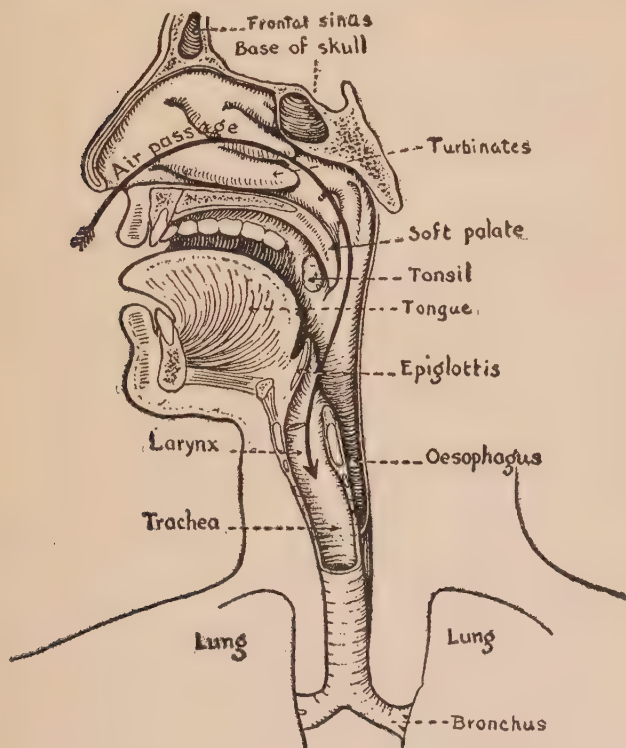


FIGURE 1.—PROFILE VIEW OF RESPIRATORY TRACT.

nostril leads into a tall narrow space known as the nasal cavity. The right and left nasal cavity are separated by a partition called the septum. On the

outer wall of each nasal cavity there are three cartilaginous projections, shaped like scrolls—the turbinates, which possess a very rich blood supply. Just outside each nasal cavity is the antrum, or

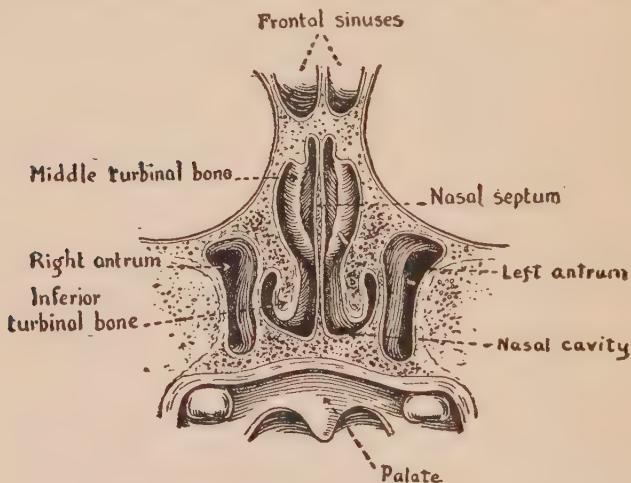


FIGURE 2.—TRANSVERSE SECTION THROUGH NASAL CAVITIES.

lateral sinus, which connects with the nasal cavity through a small opening. Just above the nasal cavities are the frontal sinuses which, like the lateral sinuses, connect with the nasal cavities. In addition to these four large cavities, a small one is also found in the sphenoid bone, called the sphenoid sinus. These cavities in the bones of the

skull are lined like the nasal cavities with mucous membrane, which is rich in blood vessels and well lubricated with mucus.

The nasal cavities lead back into a common space called the nasopharynx, which lies just behind the soft palate and is really the upper part of the pharynx or throat. In children this space is often the seat of small masses of tissue which are known as adenoids. On either side of this space there is a small opening which leads into the Eustachian tubes. These tubes connect the throat with the internal ear and preserve the proper balance of atmospheric pressure on the eardrums. On either side of the throat just behind the wisdom teeth are the tonsils. Still further down, the throat divides into two canals. The one in front is called the trachea and leads into the lungs; the one behind is the esophagus, which connects the throat with the stomach. The upper portion of the trachea is called the larynx; just below its opening into the throat lie the vocal cords, which are protected by a fold of mucous membrane called the epiglottis.

Below, the trachea divides into two small tubes

known as the bronchi. The bronchi lead directly into the lungs, where they subdivide like the branches of a tree into many still smaller tubes.

This marvelous mechanism, like all the body functions, works with a precision that cannot but appeal to the imagination. Each one of these intricate parts has a definite rôle to play—all are constantly guarding against infection and destroying germs. The function of the nasal cavity and its accessory sinuses is to filter, warm, and moisten the incoming air before it enters the lung. The filtering is accomplished in the first place by the hairs which line the entrance to the nose, and in the second place by tiny bristles called cilia, which cover the mucous membrane and, by their constant waving, remove foreign particles and bacteria, forcing them out through the nostrils. Then the air we breathe, which is often too cold or dry for the sensitive membranes of the lung, is warmed and moistened by the mucous membrane which lines the nose and the accessory sinuses. The heat is supplied by the blood; the moisture comes from small glands in the mucous membrane which are constantly discharging water and mucus

on the surface of the mucous membrane. The colder the air the more abundant is the supply of moisture exuded from the mucous membrane. Furthermore, the sinuses and turbinates serve to provide still more surface over which the outside air may pass before it enters the trachea and lungs.

The air, now partially warmed by its passage through the nasal cavities, enters the throat and passes into the larynx and trachea where still more heat and moisture are available. The entrance to the larynx is guarded by the epiglottis, nature's ingenious trapdoor, which opens with the inspiration of air, but closes during the act of swallowing, so that food and liquid are prevented from entering the wrong tube. Just below the epiglottis are the vocal cords which open and close like curtains. They are wide open during inspiration and expiration, but are closed automatically when irritating air is inhaled. When the vocal cords become swollen we have the condition known as laryngitis and it is this swelling which produces hoarseness and loss of voice.

From the trachea the air passes into the main

bronchi, thence into their many ramifications until it finally reaches the terminal air cells, or alveoli, where the so-called "exchange of gasses" takes place. The oxygen of the atmosphere, so essential to the working of the human machine, passes into the blood which circulates through the lungs, and the carbon dioxide of the blood passes out into the air. Thus, inspiration supplies the body with necessary fuel; expiration rids it of poisonous waste products.

In addition to respiration the nose has another important function. Distributed in the upper part of the nasal cavity are the terminal branches of the olfactory nerve which controls the sensation of smell. During the act of breathing, odors enter the nasal cavity and come in contact with the olfactory nerve, which then transmits the sensation to the brain. In case of obstruction or inflammation, mucus covers the nerve and the sense of smell is impaired or lost. Many people do not realize that the sense of taste is more or less dependent upon the sense of smell and that when the sense of smell is impaired the sense of taste is also affected.

Finally the nasal cavities in combination with the sinuses supply resonance to the voice. When the mucous membrane of the nose is swollen or inflamed with a cold, the voice, shut off from the sinuses which serve as sounding boxes, has its exit through the mouth only and, losing its resonance, takes on a hard disagreeable tone. Therefore when we speak of some one talking "through the nose," we really mean through the mouth—without using nature's sounding boxes.

As every one knows, it is quite possible to breathe through the mouth, thus leaving the nasal passages entirely out of the act of respiration. Nature, however, never intended that the mouth should be used in normal respiration, but only in emergency. The mouth is not provided with the proper machinery for filtering, warming, and moistening the incoming air. For this reason breathing through the mouth is apt to irritate the mucous membrane, and, furthermore, by allowing germs to enter the trachea, exposes the individual to infection. Mouth breathing has further disadvantages which will be discussed later.

The Function of the Tonsils.—The tonsils are

placed at either side of the throat and perform the same office as the other lymph glands—they destroy bacteria and other injurious substances that enter through the nose or the mouth. In this respect the tonsils serve a useful function, but in the act of destroying bacteria they frequently become themselves the seat of infection. When this occurs they usually become enlarged and contain pus. In this state they are a menace to health and should be removed. The same is true of the adenoids which serve a function for the nose similar to that of the tonsils (*see* Chap. V).

Even from this short description it is readily seen that the respiratory mechanism is a delicately adjusted machine, the chief function of which is to provide the blood with oxygen, or fuel. The oxygen must be received in the right way and at the right temperature, for, like gasoline in the carburetor, the oxygen is burned more readily when supplied in the warm state. When injury or infection takes place at any point in the tract, symptoms of discomfort follow. In later chapters we shall discuss these various injuries and the symptoms which accompany them.

CHAPTER III

VARIETIES OF COLDS AND THEIR CAUSES

WHEN the layman speaks of having a cold he uses the term to cover a number of different conditions which are readily distinguishable by the medical man. A discharge from the nose is most frequently caused by the common cold, but it is also one of the symptoms of grip or influenza, hay fever, rose cold, infections of the sinuses, etc. In addition to these various kinds of inflammation in the nose, colds differ according to the severity of the infection, the age and general physical condition of the patient, and the extent of mucous membrane involved.

The Common Cold.—The scientific name for the common cold is acute coryza or acute rhinitis. The layman knows it as “cold in the head,” and regards it primarily as an infection of the nasal cavities. As a matter of fact, most colds start high up in the throat or nasopharynx and spread up-

ward from this point into the nasal cavity. Sometimes the cold spreads downward as well as upward; when this happens the patient is conscious of a sore throat, and if the process continues still further downward the larynx and trachea become involved and hoarseness and cough develop. In the majority of cases, however, the common cold manifests itself chiefly in the nose and throat.

Symptoms.—The symptoms of the common cold are so well known that it seems hardly necessary to mention them. The process may start in the throat with a feeling of dryness or tickling, or the first intimation of trouble may be a thin watery secretion from the nostrils. Some patients complain of burning of the eyes due to involvement of the conjunctiva or mucous membrane of the eye, which is directly connected with the nasal cavity by the tear duct. As the cold develops the nasal discharge becomes more profuse and the mucous membrane of the nose so swollen that normal respiration is greatly impeded. By this time symptoms in the throat may have disappeared, or, on the other hand, the throat may have become so sore that the patient can hardly swallow, de-

pending on the course the infection is taking. By the third day the discharge from the nose becomes thicker and takes on a yellow pus-like quality, and by this time the sense of smell is usually affected, perhaps entirely lost. With the loss of the sense of smell there is partial loss of the sense of taste which is dependent in great measure on the sense of smell. During this time the patient may, apart from the discomfort, feel perfectly well or only slightly indisposed, but many people become really ill and have to remain in bed for several days. When a cold produces signs of illness it is usually accompanied by fever and chilly sensations; with these come also the loss of appetite and a feeling of weakness.

The Actual Cause of Colds.—Colds are due to bacteria, and it is therefore correct to say that colds are infections. The healthy nose is usually free from bacteria, but the mouth and throat harbor a great many different kinds of microbes. The more important of these are the Streptococcus, the pneumococcus, the Staphylococcus and the influenza bacillus. These bacteria are usually harmless inhabitants of the healthy throat but, under

certain specified conditions, they attack the mucous membrane and do it more or less injury. It is now widely believed that the common cold is caused in most instances by a "filterable virus," that is, a germ so small that it is invisible and capable of passing through the finest filter. The most generally accepted theory is that this minute virus initiates the disease and that the other bacteria mentioned play a secondary but important part in producing the inflammatory condition, and are in many cases directly responsible for the complications which so frequently develop. There is no doubt, however, that under certain conditions which lower the vitality, the ordinary bacteria of the mouth may cause infection. The Streptococcus, for example, is undoubtedly responsible for most attacks of tonsillitis. The pneumococcus frequently causes sore throats and colds in children, and the influenza bacillus is unquestionably responsible for many cases of grip.

The Non-Contagious Cold.—Colds may be divided into non-contagious and contagious infections. The non-contagious cold is one which we do not contract from others nor communicate to

them. It may be due to any one of a number of causes. Anything which irritates the mucous membrane of the nose or throat may cause congestion which soon becomes actual inflammation when bacteria invade the injured mucous membrane. A non-contagious cold is therefore essentially a sequel of irritation to the mucous membrane. It may be mild or severe but it is usually the former.

As the non-contagious cold is the result of irritation, there are naturally many things which can be looked upon as predisposing causes. Excessive smoking is perhaps one of the commonest causes of this type of cold. Cigarettes are probably more to blame than cigars or the pipe, chiefly because the cigarette smoker consumes them in such large numbers. People who are working in an atmosphere of irritating gases, such as formalin, bromin, etc., may develop an acute congestion in the nose which is apt to be followed by an acute sore throat or cold. Extremely cold air or overheated air, particularly if too dry, often brings on a cold of this type. Singers and public speakers irritate the throat by overuse of the voice and may develop a sore throat as a result. Some people

develop a cold after eating candy or some food that upsets their digestion. In such digestive upsets the mucous membrane of the throat becomes roughened, the germs get in, and the cold follows.

Another group of non-contagious colds develops from local infections in the tonsils and sinuses. Many people who have frequent colds for no apparent reason are found upon careful examination to harbor diseased tonsils. Upon the slightest provocation the germs escape from the pockets in the tonsils, spread through the nose and throat and cause extensive inflammation (*see Chap. V*).

Still another group of non-contagious colds is traceable to a poor circulation, which in turn may be due to any one of a number of factors, such as a weak heart, neurasthenia, malnutrition, lack of exercise, etc. The weak heart causes congestion of the mucous membrane which in turn lowers the local resistance. The neurasthenic or temperamental person has a proverbially poor circulation, referable in medical terms to an unstable vasomotor system. It is an interesting observation that the temperamental person suffers more from colds than one of phlegmatic nature, due, prob-

ably, to a high-tuned nervous system. Thin people are more susceptible to colds than fat people, but here the protection comes not so much from good circulation as from the layer of fat which actually protects the individual from sudden changes in temperature. Fatigue is another important cause of colds; undoubtedly bacteria find entrance much more easily when the patient is exhausted, and even if a man is in perfect physical condition he is more liable to attack during a period of fatigue.

Improper clothing is an extremely important factor in the causation of colds. Sudden changes in temperature are injurious only when one fails to meet the changes by proper adaptation in clothing. The first cold snaps in the fall bring on many colds in people who are still wearing summer clothing; or light clothing is sometimes donned too early in the spring when the sudden return of cold weather may find the wearer unprepared to meet the change. On the other hand, the wearing of too much clothing is also undesirable, especially for those who are spending their time in overheated rooms. The perspiration induced by the high temperature causes sudden chilling of the body when

they go outdoors, and colds are apt to follow. The old fallacy, firmly upheld by our grandparents, that it was very dangerous to vary the weight of clothing once a certain combination had been adopted has been disproved by common sense and experience. It was considered almost criminal to remove a flannel shirt after it had once been donned for the winter season, no matter how unseasonable the weather. It is much more sensible to adapt the clothing from day to day to the exigencies of the weather, particularly in a changeable climate like that of our New England and Atlantic seaboard states.

Sad experience has taught most people that *unequal* chilling of the body is a prime factor in producing colds. It is not getting cold all over that does the damage—it is the draft on the back of the neck, exposure to the wind without a hat, wetting the feet, sudden change from high to low shoes, anything in fact which exposes a susceptible or usually protected area of the body to sudden lowering of the temperature. One of the most popular misconceptions concerning the cause of colds is the idea that they are caused by exposure

to cold. Exposure to cold *per se* will not cause colds so long as the body is kept dry and warm. We may even go further and say that a person in average good health can get very cold from exposure without catching cold. Soldiers are constantly being subjected to freezing weather and even to wet weather, yet colds are quite rare among our seasoned troops. The same applies to policemen and other outdoor workers who are constantly exposed to bad weather yet rarely contract colds. The significant feature in catching cold is exposure of some one part of the body to a low temperature. A draft of air from an open window is much more dangerous than a walk in the cold air. Cold wet feet, exposure of the ankles, sudden exposure of the neck or head readily produces sneezing which is often the first sign of an oncoming cold. A person who is perspiring and becomes suddenly chilled is very susceptible to a cold. Here again the disturbance is probably caused by unequal cooling of the body, for one may be in a good perspiration from a game of tennis and plunge suddenly into the cool and refreshing surf without any ill effects. The reason for this apparent in-

consistency is interesting. Nature has a very complicated heating apparatus which adjusts itself to the conditions to which the body is exposed. If the atmosphere is hot the sweat glands are stimulated and the evaporating perspiration will chill the body. If we go into a cold atmosphere the capillaries of the skin contract and then dilate, and the surface of the body will be warmed by the increased supply of blood. When we expose just one little sensitive spot to the cold, Nature cannot do her task properly. The body cannot be kept at the temperature which the heat of the room demands and the small exposed area heated adequately. It is asking too much of the heat regulating apparatus. Experiments have shown that when cold drafts of air are allowed to blow on the skin of healthy individuals the surface temperature of the mucous membrane of the mouth and throat is definitely lowered, and that following such change in temperature many of those subjected to the draft promptly develop symptoms of rhinitis.

While it has been explained that non-contagious colds are due to a variety of predisposing causes, these causes are not sufficient in themselves to ac-

count for the actual symptoms. Colds are caused by germs just as surely as pneumonia and typhoid are caused by germs. In the case of non-contagious colds the causative germ is presumably a normal inhabitant of the patient's nose and throat. In the contagious cold, which will now be discussed, the germ is received from outside sources. It is obvious, therefore, that those who are affected by one or more of the predisposing factors just described are particularly susceptible to germs of all kinds, and should take the greatest possible precautions against infection.

The Contagious Cold.—The contagious cold is one which is contracted directly or indirectly from another person and which can in turn be passed on to others. It is commonest during cold weather, and is very apt to appear from time to time in the form of epidemics. As a rule the contagious cold runs a somewhat more severe course than the non-contagious cold. There is some local discomfort and the patient is very prone to have fever and chilly sensations. The same predisposing causes which are active in bringing on attacks of non-contagious rhinitis—such as getting chilly, poor

circulation, or local irritants—play an important part in predisposing to the contagious colds, but undoubtedly the contagious cold is capable of attacking a healthy individual with healthy mucous membranes. This type of cold is quite as contagious as any of the other contagious diseases and should be treated as such. It has been proved by experiments that the nasal secretions from a case of this kind when placed in the healthy nose will rapidly produce similar symptoms in the person tested.

It has already been explained that in the non-contagious cold the exciting microbe exists already in the nose or throat, and gains entrance to the mucous membrane only when some irritant has injured the membrane, or when there has been some lowering of the local temperature. In the contagious cold the germ comes from outside the body, directly or indirectly from some one who already has a cold, the germ being transmitted from the patient to the healthy individual by various methods. Direct infection takes place when the cold is transmitted from the infected person to a healthy person by means of the small droplets of

saliva which are thrown into the atmosphere when the infected person talks, coughs, or sneezes. Some people are so susceptible to contagious colds that they have only to go into the same room with the sufferer from a cold to contract the infection themselves.

It is obvious, of course, that kissing is an infallible method of transmitting colds, and one of the commonest sources of infection.

The contagious cold may also be transmitted indirectly when intermediate objects become contaminated such as drinking glasses, towels, etc. Or, the germ may be on the hand of the sufferer and pass to the hand of his neighbor in a casual handshake, and then in turn be conveyed to the mouth or nose. For this reason the washing of the hands before eating cannot be too strongly stressed. It is not always realized that the germ will live long after the secretions have apparently evaporated, and a soiled handkerchief that has been used by an infected person may be a menace to others for a considerable time.

Sore Throat.—This condition may be either a symptom or a sequel to a cold. Infection always

attacks at the weakest point, and for this reason some people develop the first signs of cold in the nose, others in the throat, according to their constitutional idiosyncrasies. The physician divides "sore throat" into two main groups: acute pharyngitis and acute tonsillitis. Acute pharyngitis is the ordinary sore throat in which the entire throat becomes infected. It usually starts in a small spot and in severe cases spreads rapidly, so that in the course of twenty-four hours the entire throat feels dry and parched and swallowing is painful. The mucous membrane is swollen and red and covered with mucus. Sore throat is an infection which rarely confines itself to the throat alone, but is likely to invade the nose in the form of rhinitis, or the bronchial tree in the form of laryngitis or bronchitis. On the other hand, when infection starts in the nose, pharyngitis may not appear until a day or two later. In either case the throat usually remains sore for only two or three days, when the symptoms disappear.

In acute tonsillitis the involvement is limited, for the most part, to the tonsils and the tissue immediately about them. Tonsillitis is a more serious

condition than pharyngitis. It is more apt to be accompanied by fever and other constitutional symptoms. The tonsils are red and swollen and sometimes they are covered with small white patches. Acute tonsillitis should always be taken seriously for the reason that it so frequently is the precursor of some more serious disease, particularly rheumatism, sciatica, neuritis, etc. (see Chap. on Tonsils and Adenoids).

Colds in Children.—The rhinitis of childhood is a serious problem for the mother and health officer, not only because of what it may lead to, but also because its very high frequency interferes seriously with the child's education and participation in outdoor exercise, etc. Just why so many apparently healthy children are susceptible to colds is a matter not fully understood. Children with this susceptibility are a constant source of anxiety to the mother, and a menace to the health of their schoolfellows and playmates. Some of them show a marked improvement after the removal of tonsils and adenoids, but I have seen a good many cases in which such operative procedures had little or no effect on the frequency of the colds. In

such cases there is apparently some defect in the child's immunity, a condition which must be met by vaccination and other preventive measures (see Chapter X).

Colds in Elderly People.—People past middle life are not so apt to be susceptible to colds as young people, but there are many exceptions to this rule. Apparently years of exposure produce a certain amount of immunity, for not only do old people have colds less frequently, but when they do have them the symptoms are not so acute. On the other hand, colds in old people are more frequently followed by pneumonia than those in youth, and for this reason their colds should be carefully treated, particularly if the general health is already below par.

Vasomotor Rhinitis.—This is an interesting and not thoroughly understood condition which occurs rather frequently in young people. The most striking feature of this disorder is its tendency to manifest itself only on certain occasions or at certain times of the day. The usual time is early in the morning just after the patient awakes. The nose becomes stuffy and there may be frequent sneez-

ing, but in the course of an hour or so the symptoms entirely disappear and may not return until the following morning. This form of cold is probably related in some way to hay fever, which is considered in the next chapter.

CHAPTER IV

HAY FEVER AND ASTHMA

NO discussion of colds would be complete without reference to rose cold and hay fever, and the closely allied condition of asthma. Any one unfamiliar with hay fever or rose cold might readily mistake them for an ordinary cold, for the local symptoms are very much the same.

Rose Cold and Hay Fever.—Rose cold is a rather remarkable condition which is prevalent in May and June when the roses and spring grasses are throwing off their pollen. Both rose cold and hay fever are due to a peculiar susceptibility of the patient's mucous membrane to pollens. The majority of mankind can inhale the pollens of plants without any ill effects, but there are some people whose nasal mucous membrane is so sensitive to some particular pollen or pollens that the inhalation of the most minute quantity of it brings on acute and distressing symptoms similar in every

respect to a cold in the head. Unless preventive measures are taken this condition is liable to continue as long as the pollen in question remains in the atmosphere. In the case of rose cold the pollen is that of roses. More often the form of pollen rhinitis which appears in the spring is caused by the pollens of grasses, and the commonest of these is timothy. Occasionally the pollens of trees are responsible for the spring type of hay fever. The trees, however, pollinate a month or so earlier than the grasses, and this fact is helpful in distinguishing between the two kinds.

Hay fever occurs in the early autumn, beginning about the fifteenth of August and lasting until frost. The pollens most frequently responsible for hay fever are those of ragweed and goldenrod. The pollens of these plants are extremely light and are readily carried by the wind for long distances. This explains why people in the cities, far removed from ragweed or goldenrod, can develop the symptoms of hay fever.

One of the most striking features of hay fever and asthma is their hereditary tendency. In a large proportion of cases, a careful history will

reveal the fact that the father or mother, or one of the grandparents was a sufferer from one or the other of these diseases.

As said above, the symptoms of rose cold and hay fever are very much like those of acute rhinitis. The nose feels stuffy, and there is considerable watery discharge and frequent sneezing. The eyes smart and become red and swollen. The patient is very uncomfortable, for, in addition to the local symptoms in the nose, there is often persistent headache; furthermore, the intense congestion of the mucous membrane renders it all the more susceptible to bacteria, and often a cold in the head is superimposed on the hay fever.

Another interesting type of hay fever is that in which the patient is susceptible to attacks all the year round. He is usually not susceptible to pollens but to some other substance in the air such as the fine emanations from the skin or hair of animals, the dust from feathers or wool, certain talcum powders, etc. Finally, there are some forms of hay fever traceable to articles of food. This type is seen usually in young children, and the foods most frequently responsible are milk, eggs,

or some form of meat. This peculiar hypersensitiveness of some people to certain pollens, hairs, foods, and other proteins, is called allergy, and is a condition which interests medical scientists very deeply. Just why these people possess such a marked susceptibility to one or more proteins is not known. The condition usually shows itself in the respiratory tract, either in the nose as hay fever or in the bronchi as asthma; but the oversensitiveness may be located in the stomach and intestines, especially in children, where it manifests itself in the form of vomiting and diarrhea whenever the protein in question is eaten. Or, finally, the allergy may exist in the skin, in which case the patient breaks out with hives whenever a certain protein is eaten, or rubbed into the skin.

Modern science has developed an interesting and valuable method whereby physicians may determine exactly what form of protein it is which excites irritation in the nose of the hay fever patient. These determinations are known as skin tests. A series of minute scratches are made on the forearm, then each scratch is rubbed with a definite protein which has been prepared from some

pollen, food, animal hair, etc. In almost every case the skin "reacts" to the protein to which the patient is susceptible. By "reaction" we mean the appearance of an irregular red lump which resembles a mosquito bite at the point where the protein was applied to the skin. By means of these reactions the physician can tell exactly what protein, or proteins, is giving the patient trouble, and when this information is obtained it is usually possible to give him considerable relief by vaccine inoculations against that particular protein to which he is susceptible. The vaccine is prepared from the protein and small injections are given in the arm every five or six days for two or three months before the "season" begins. For instance, if the patient is suffering from the spring type of hay fever, and proves to be susceptible to timothy, small injections of timothy vaccine should be administered every few days, beginning about the middle of February and continuing up to the latter part of May, when the season begins. On the other hand, if the patient is sensitive to ragweed, vaccination should be started about the first of June and continued up to August fifteenth, when the rag-

weed pollen begins to fly. Some patients are much relieved by vaccinations during the season, but as a rule the most striking benefit comes from preventive treatment, that is, when the injections are given before pollination begins. The vaccine treatment of hay fever has been a godsend to most sufferers from this disease. The great majority of them are greatly helped by the injections, and after several courses of treatment they may be permanently cured of the disease.

In case the patient is susceptible to the hair of some animal, the easiest road to cure is to keep away from that particular animal; if some article of food is responsible, to abstain from that particular food.

Asthma.—This is a chronic and very troublesome disease. When it exists in a severe form, it is quite capable of reducing the sufferer to a state of bedridden invalidism. Like hay fever, asthma is a disease of “allergy”—that is, the symptoms are caused by a hypersusceptibility of the bronchial mucous membrane to certain proteins. As in hay fever these proteins may be pollens from plants, but they are just as apt to

be found in some form of dust, such as dust from wool, feathers, or animal hair. Asthma may also be caused by hypersensitiveness to bacteria. As in the case of hay fever the cause of asthma may frequently be determined by skin tests, and this method of diagnosis is widely used nowadays for finding out the proteins to which the patient is sensitive. One of the commonest forms of asthma is caused by sensitiveness to horses. Such a patient is unable to go near a horse without having an attack. Other people are equally sensitive to cats or dogs. Sleeping in a feather bed will cause asthma in those who are sensitive to chicken or goose feathers, and so on.

The symptoms in asthma are due to a congested bronchial mucous membrane and spasm of the muscular coat of the bronchi. It is this spasm which makes it so difficult for these patients to breathe.

The attack of asthma, which usually occurs during the night, generally follows contact with the protein to which the sufferer is sensitive. The attack is ushered in by paroxysms of coughing, and there is great difficulty in getting the breath. At first the cough is dry, but later the patient brings

up sticky, mucoid expectoration, after which there is usually some relief from the symptoms.

The relationship between colds and asthma is a very close and important one. On the one hand, many asthmatics date the onset of their disease to a heavy cold in the head and chest. Asthma of this type is usually directly traceable to bacterial infection—the same bacteria that were mentioned in connection with colds, namely, *Streptococcus*, *pneumococcus*, *staphylococcus*, and the influenza bacillus. In such cases asthma is a mere continuation or complication of the cold. On the other hand, a severe attack of asthma is frequently followed by a cold, or an attack of bronchitis. Here the bacteria take advantage of the congestion caused by the asthmatic paroxysm, penetrate the mucous membrane and give rise to a genuine infection. After asthma has existed for a number of years, the patient is very apt to develop a chronic bronchitis which comes on every winter and causes almost as much discomfort as the asthma itself.

The asthmatics need careful medical attention. Most of them are sensitive to some protein, the identity of which must be discovered in order that

the patient may keep away from it. Vaccine in some form is usually indicated, and most cases are benefited by the injections, which, however, must be kept up for some time. In asthma, it is also important to remove any irritating sources of infection, such as diseased tonsils, adenoids, and infected teeth. Asthmatics are usually better off in a warm, dry climate, such as that of New Mexico or Southern California.

CHAPTER V

TONSILS AND ADENOIDS

ADENOIDS are one of the commonest conditions encountered in infancy and childhood, and one of the most frequent causes of colds in children. Furthermore, they are probably responsible for more minor infantile ailments than any other one disorder. Adenoids, or adenoid vegetations, are composed like the tonsil, of lymphoid tissue. They are situated in the upper portion of the throat just behind and above the soft palate. In infancy they are soft and spongy, but in older children they become firm and tough. A certain amount of adenoid tissue is normal in childhood, but when the adenoids become enlarged they produce a decided obstruction to nasal breathing and thereby indirectly cause other troubles.

The cause of adenoids is not definitely known. They are most frequently encountered in children living in damp, changeable climates. Sometimes

they develop after an attack of measles, scarlet fever, or diphtheria and some people are of the opinion that they are caused by repeated colds in the head. The reverse is true, however; they are themselves a frequent cause of colds.

The symptoms of adenoids are very characteristic and increase as the age of the child advances. One of the most constant symptoms is nasal catarrh, which shows itself by constant discharge from the nose. This chronic condition is frequently interrupted by acute attacks of cold or rhinitis, especially during the winter season. Many of these colds develop into bronchitis, which may keep the child ill the greater part of the winter. Another characteristic symptom of adenoids is mouth breathing. This may be noticeable only during sleep, but if the condition is advanced mouth breathing is constant. Children with adenoids are particularly liable to have croup, and in older children adenoids may be responsible for asthma. When the condition has existed for some time the child's face undergoes certain characteristic changes, and in a typical case the diagnosis of adenoids can readily be made by a layman. The

facial expression is dull and stupid, the palate becomes arched, the mouth is held open, and the nose is small and undeveloped. Then there are certain deformities of the chest which may appear—noticeable depressions of the lower part with prominence of the breast bone, usually spoken of as “pigeon breast.” Children with adenoids are apt to be languid and listless and deficient mentally, and in advanced cases deafness may be quite marked. It is readily seen that adenoids interfere with the health and development of the child and unless there is some good reason to the contrary they should be removed by operation. No other method of treatment is worth considering. The best time for the operation is the spring or early summer in order that the mucous membrane may have an opportunity to regain its normal condition during the warm months. Unless the symptoms are very marked it is preferable to postpone the operation until the child is at least two years old.

Following the removal of the adenoids the child's condition begins to improve almost at once. The breathing becomes freer and the sleep more

restful. There is usually a rapid increase in weight and the child's whole personality undergoes a great change for the better. The operation itself is not a dangerous one; occasionally there is some hemorrhage, but this is usually controlled without much difficulty. Recurrence of adenoids after surgical removal is quite rare when the operation has been properly carried out; but if in later years the symptoms of adenoids reappear, it is wise to consult a specialist to make sure that there has been no return of the growth.

Tonsils.—Enlargement of the tonsils occurs in 15 to 25 per cent of all children and appears to be constitutional in certain families. This condition is frequently found in association with adenoids and represents another phase of the same process. All degrees of enlargement are seen. I have seen tonsils so large that when the child opened its mouth the tonsils almost met in the middle line. When they reach these proportions they of course interfere greatly with respiration.

When the tonsils are only moderately enlarged they cause few or no symptoms. In some cases, however, they close up the Eustachian tubes and

cause deafness, and, if considerably enlarged, they are apt to affect the quality of the voice, giving it a decidedly nasal character. The objection to enlarged tonsils is based not so much on symptoms which they may themselves produce as on the fact that they are a source of continual danger in predisposing to other conditions, especially coughs and colds. Another frequent sequel is acute tonsillitis, and furthermore, sufferers from enlarged tonsils are very liable to contract diphtheria or scarlet fever. Treatment with medicines may be of some help in reducing their size, but in most cases removal of the tonsils by operation is the only treatment that can be relied upon. The operation if skillfully performed usually gives permanent relief, but when removal takes place very early in life the tonsils occasionally recur.

Acute Tonsillitis.—Acute tonsillitis is not confined to people with enlarged tonsils, though they are of course more susceptible to this infection than people with normal tonsils. It is a very common winter infection, quite contagious, and sometimes epidemic. It is most common in young persons, particularly at the school age, but is

rarely seen in infants, that is, children under two years of age. Strangely enough, acute tonsillitis is quite frequent in newly married persons, a phenomenon that no one has been able to explain. Acute tonsillitis is usually caused by a germ known as the *Streptococcus*.

The patient may have only slight symptoms or may be quite sick. Sometimes there is nothing more than a slight soreness in the throat and a degree or two of fever. More often there are chilly sensations, aching pain in the back and legs, and fever which may go as high as 105° , but usually varies from 101° to 102° . The throat is sore and there is difficulty in swallowing. The tonsils become red and swollen and covered with small white patches. Sometimes these patches fuse together and the physician has considerable trouble distinguishing the disease from diphtheria. The glands in the neck are often tender and painful.

The patient should be in bed and under the care of a physician. The diet should be soft or liquid, and water should be taken in large quantities. External applications to the throat in the form of ice bags or hot poultices are also of help.

Patients who have repeated attacks of acute tonsillitis should consult a specialist because of the complications which so often follow the disease. Indeed, the complications are the chief dangers from acute tonsillitis, most important and frequent of which is inflammatory rheumatism. It is also noteworthy that people subject to recurrences of acute tonsillitis are in danger of developing heart disease. In most cases the removal of the tonsils is indicated, but the operation should not be performed during an acute attack.

Quinsy.—Quinsy is a special form of tonsillitis in which an abscess forms around the tonsil, usually on one side only. It is a very painful, though usually not a dangerous, condition and generally requires a surgeon's knife. When the incision is made the pus is discharged through the opening as in any abscess or carbuncle and the patient makes a rapid recovery.

Chronic Tonsillitis.—This is liable to follow repeated attacks of acute tonsillitis, and is a potent factor in predisposing to colds. The most interesting thing about this condition is the fact that it so frequently exists without causing any symptoms;

there may be little or no enlargement of the glands which, on examination, may appear perfectly innocent, and for this reason people frequently neglect badly infected tonsils. Apparently healthy tonsils when removed are often found to contain small abscesses filled with pus, and the consequence is that the physician has learned to look upon the tonsils with suspicion when signs of infection appear in certain other parts of the body. In many cases, even though they appear harmless enough, gentle pressure will cause pus to spurt out through the tiny openings which cover their surface. Chronic tonsillitis is objectionable for the following reasons:

1. It is very apt to impart a foul odor to the patient's breath.
2. Individuals with chronic tonsillitis are prone to attacks of acute tonsillitis.
3. Chronic tonsillitis lowers the general resistance against colds, tuberculosis, and infections in the ears and throat.
4. Chronic tonsillitis is the most frequent cause of chronic rheumatism or chronic arthritis, as it is more properly called.

It is obvious therefore that unless there is some good reason to the contrary chronically inflamed tonsils should be removed. They are a constant menace to the health of the patient, and the operation, though hardly a trivial one, causes comparatively little loss of time from one's daily routine.

CHAPTER VI

GRIP AND INFLUENZA

GRIP.—Grip is a term which is used rather loosely by the layman to designate anything from the common cold to a severe influenza or bronchitis. As a matter of fact, there is some confusion among medical men regarding the terms “grip” and “influenza,” and many use them synonymously. The most useful distinction is to confine the term “grip” to the comparatively mild cases of influenza-like infection that appear every winter, and reserve “influenza” for a highly contagious form of respiratory infection, which occurs in epidemic form.

Epidemic Influenza.—Influenza is a highly contagious form of “cold” which occurs in large or small epidemics during which it spreads with remarkable rapidity. It is a disease of great antiquity. Its authentic history begins with the epi-

demic of 1510. Since that time numerous epidemics have occurred in all parts of the world. Many can remember the epidemic of 1889-1892, and every one recalls with considerable vividness the terrible epidemic of 1918 when influenza swept around the world, invading every land, civilized and uncivilized, and costing millions of lives. Students of public health look upon the influenza epidemic of 1918 as the greatest scourge (from the standpoint of lives lost) that has visited the human race during the historical era. Even the black plague, the terror of Europe during the Middle Ages, cannot rank with our last influenza epidemic as a ruthless man-killer.

The cause of influenza has not been finally established. Many bacteriologists claim that it is caused by the "influenza bacillus," other investigators believe that influenza is due to the activities of an almost invisible parasite known as the "Bacterium pneumocintes." In favor of the influenza bacillus theory is the fact that when in the course of scientific experiments healthy monkeys are inoculated with this germ, they develop symptoms very similar to those displayed by human patients

with influenza, even to the development of influenzal pneumonia.

Grip is infectious and slightly contagious, but influenza is infectious and highly contagious. The layman often fails to make a distinction between these latter terms. Any disease which is caused by germs is infectious, but only those infectious diseases which are spread by contact are spoken of as contagious. Malarial fever is an infectious disease, but diphtheria is an infectious disease which is highly contagious.

Grip is an infectious disease which is only mildly contagious, characterized by sudden onset with aching pains in the back and limbs, headache, fever, prostration, and symptoms in the respiratory tract, notably sore throat, cough, and cold in the head. The cause of this disease is still in doubt, but the influenza bacillus is found in a majority of the cases.

The patient should be put to bed, a hot water bag at his feet, and given a hot drink, such as lemonade containing a teaspoonful or two of whisky, and blankets added to the covering so as to induce perspiration.

This disease usually runs a comparatively mild course. However, it is wise when possible to call in a physician, as certain complications may arise, the most common of which are: otitis media, mastoiditis, bronchitis, and pneumonia. In some cases convalescence is slow and the patient's strength fails to return as rapidly as it should; and like all people whose vitality is below par he suffers from mental depression and lack of ambition generally. This condition is best treated by a change of air; and where this is not possible, some good general tonic will prove beneficial.

There is no very satisfactory method of prevention. Vaccines are of doubtful value and there is no serum analogous to diphtheria antitoxin which will confer even a temporary immunity. When a case of grip develops, it is important to protect other members of the family and the best method of protection is to see that the patient is properly quarantined. The sputum should be collected in receptacles and sterilized, all the clothing and other articles of linen which come in contact with the patient should be sterilized by boiling, and the patient's eating utensils should be kept entirely

separate from those used by the rest of the family. After convalescence is complete the patient's room should be fumigated with formalin.

The symptoms of epidemic influenza as we saw it in 1918 were usually those of a severe bronchitis or sore throat, plus certain constitutional symptoms, the most prominent of which were fever (sometimes as high as 105°), headache, extreme weakness, and general aching of the back and limbs which was sometimes quite severe. Perhaps the most striking characteristic of the disease is the marked prostration which accompanies it, patients often becoming so weak that they can hardly speak. This extreme prostration is the chief difference between influenza and an ordinary cold or grip attack, and because of the similarity of the local symptoms the term "influenza" is sometimes used in connection with the less serious infections. A person may have a severe cold or bronchitis and be very uncomfortable, yet still strong enough to continue at his regular duties; if he is suffering from influenza, however, his weakness is very marked, and he is a really sick man. Epidemic influenza is usually spoken of as a respiratory disease and

justly so, as some part of the respiratory tract is usually involved. In some cases, however, the patient may be very ill and markedly prostrated, yet have no local symptoms other than a mild hacking cough. In the army in 1918 we occasionally saw cases of undoubted influenza in which there were no local symptoms whatever, that is, no cold, no sore throat, no cough. In a surprising number of cases, only the bronchi were infected, and the patient showed no signs whatever of cold in the head.

Influenza is almost never a fatal disease *per se*, but it is dangerous because of the severe complications which frequently accompany it. The most serious of these is bronchopneumonia, or influenzal pneumonia, as it is often called. This highly fatal disease was very common during the epidemic of 1918 and was responsible for most of the fatalities. The striking feature of this type of pneumonia is the blue color of the skin, lips and finger nails, due to lack of oxygen. These patients literally drown in their own secretions, for they become so weak that they are unable to cough up the profuse secretions in the lungs and bronchi.

Self-treatment, or home-treatment, is a dangerous procedure in the case of influenza patients. If a fever exists and influenza is suspected, the family physician should be called and the patient placed entirely in his care. Indeed, any patient with fever should always be under skilled medical attention. The most important feature of influenza treatment is complete rest in bed which should be maintained as long as the feeling of prostration is present, and the patient should, of course, be rigidly isolated so as to prevent further spread of the disease. The influenza patient is usually so completely used up even after recovery from the acute symptoms that a trip south or to the seashore is often advisable.

CHAPTER VII

COMPLICATIONS OF COLDS

THE complications of colds constitute one of the most important phases of the subject. By referring to the chapter dealing with the structure of the nose and throat it can readily be seen how intimate is the connection between the various parts of the entire breathing apparatus. Furthermore, even the ears and the eyes are connected with the respiratory tract by tiny canals lined with mucous membrane which is continuous with the mucous membrane of the nose and throat.

In considering complications we shall begin, as it were, at the top of the respiratory tract and end with the more serious complications which may develop in the lower respiratory tract.

Acute Conjunctivitis.—A frequent complication of the common cold is acute conjunctivitis or inflammation of the mucous membrane of the eye. Indeed, in influenza it is such a usual accompani-

ment of the cold that it might almost be considered an integral part of the disease. It is most apt to develop in the early stages. The patient is suddenly aware of burning and smarting in one or both eyes and upon looking at himself in the mirror he finds that the eyes are bloodshot and that a small drop of pus has collected at the inner corner or canthus of his eye. After sleep the lids may be stuck together by the secretions from the inflamed eye, so that the patient has some difficulty in separating them.

This complication is usually a mild and temporary affair. Its course can be shortened by a few drops of 10 per cent argyrol dropped into the eye with a medicine dropper.

Otitis Media (Abscess in the ear).—This is a very common complication of colds, particularly in children. Several days after the onset of the cold the patient is suddenly conscious of a sharp boring pain in the ear accompanied by throbbing. Sometimes the pain is of neuralgic character and affects one entire side of the face, and in all probability the patient has some fever.

At the first intimation of this complication a

physician should be summoned. Usually it is necessary to puncture the eardrum in order to allow free discharge of the pus. It is chiefly the pressure of the accumulated pus in the ear which causes the acute pain, and the patient experiences the greatest relief after this simple operation. Sometimes the eardrum ruptures spontaneously before the operation is performed. In case this occurs there is no need for alarm, but the ear should be irrigated with a mild, warm antiseptic solution, such as boric acid.

Acute Mastoiditis.—The chief danger of otitis media lies in the possibility of the infection spreading to the mastoid, a porous bit of bone situated behind the ear and closely connected with the internal ear. Acute mastoiditis is a fairly serious complication and nearly always necessitates an operation. The most important symptoms are pain and tenderness behind the ear and sometimes there is actual swelling. In addition to these local symptoms the patient is feverish and feels ill.

Following the operation the sufferer usually makes an uneventful recovery, but in a small percentage of these cases the bacteria get into the

blood and necessitate a more radical operative procedure. The cases that develop septicemia (bacteria in the blood) are always serious and in some instances fatal in spite of the most skillful surgery.

Chronic Otitis Media (Discharging ear).—Sometimes patients with acute otitis fail to recover entirely from the trouble and continue to have a purulent discharge from the ear. This may continue for months or years, or even for the remainder of life. The condition is not serious but causes a great deal of inconvenience and there is a possibility also that while the local process in the ear is not serious in itself it may act as the predisposing factor in the production of other maladies, such as chronic rheumatism, nephritis, etc. Patients with chronic discharge from the ears should, of course, be under the care of a specialist. In case this is not practical the ear should be irrigated every day with a warm saturated solution of boric acid as directed by the doctor.

Acute Sinusitis (Infected sinus, or antrum).—Nearly every one at some time or other has had a personal and painful experience with this very

frequent complication of colds which is particularly common as a complication of influenza. In the chapter on structure and function of the nose and throat it was explained that there were four large cavities or sinuses connected with the nasal cavity—one on either side of the nose known as the antrum, and one above either eye called the frontal sinus. When any one or more of these cavities become infected, the mucous membrane swells, secretion is increased, and the cavity is soon filled with pus. Acute sinusitis is usually first noticeable during the second or possibly the third week of a cold. It is characterized by a dull heavy aching pain over the sinus affected. This pain is apt to be periodic, coming on every day at a certain time, usually in the afternoon or evening. Nature's arrangements for drainage in the sinuses are not very effective. If she had provided us with larger ducts from the sinuses into the nose, infection of these cavities would cause less discomfort, but Nature planned for a healthy condition, not an unhealthy one. As it is, the drainage is poor and when the sinuses become infected pus is very prone to collect, and remain there for an indefinite

time. The specialist relieves this condition by improving the drainage and irrigating the cavity with antiseptic solutions.

Chronic Sinusitis.—Chronic sinus infection may follow an acute attack. In contrast to acute sinusitis, chronic infection of the sinuses may cause little or no pain. Sometimes there is a dull ache over the diseased sinus, which the patient may mistake for neuralgia. The most characteristic symptom of chronic sinusitis is a discharge of pus from one or both nostrils. The discharge is usually intermittent and affected by change of posture—when the patient bends forward, or perhaps when he lies on his back, the pus is discharged from the sinus and makes its appearance in the throat or runs out of the nostril. It is characteristic of the disease that the patient complains of mental depression and lack of power of concentration.

The treatment of chronic sinusitis, like that of acute sinusitis, is surgical. Patients with this trouble must consult a specialist and submit to a thorough course of treatment.

Chronic Rhinitis (Chronic nasal catarrh).—When a patient does not make a normal con-

valescence from a cold, but continues to have a discharge from the nose, we have established a condition known as chronic rhinitis. In this condition hypersecretion is the dominant symptom. The patient uses many handkerchiefs during the day and is constantly worried by the accumulation of mucous discharge in the throat. This discharge runs down the back of the throat to which it is often quite adherent, and is removed with difficulty. The condition naturally results in more or less obstruction to nasal breathing, and sufferers from chronic rhinitis are perpetual mouth breathers and snorers, usually awaking from sleep with the mouth and tongue dry and parched. Indigestion is sometimes present, referred, perhaps unjustly, to the nasal secretions finding their way from the throat into the stomach. The chronic inflammation may affect the larynx and cause hoarseness; facial neuralgia and headaches are frequently present, but when these latter symptoms occur there is apt to be some involvement of the sinuses in addition to the nasal catarrh. As the condition progresses, the mucous membrane of the nose becomes thickened, the turbinate bones (described

in Chap. II) undergo enlargement so that an operation is sometimes necessary to give the patient breathing space. As nasal catarrh progresses the sense of smell is apt to be impaired and in some cases the catarrhal process affects the Eustachian tubes, causing obstruction in these tubes and a queer feeling of fullness in the ears. If this condition is not properly treated deafness may develop with the passing years. In fact, one of the commonest causes of deafness in elderly people is chronic catarrh, which has involved the middle ear.

The first thing to try in the treatment of chronic rhinitis is a douche with some mild alkaline or antiseptic spray. If the specialist deems it advisable this can be used once or twice a day at home by the patient. One of the best known solutions for this purpose is Dobell's solution, which contains carbolic acid, borax, and bicarbonate of soda. Equal parts of Dobell's solution and warm water snuffed up the nose twice a day will loosen up the dry secretions and give the patient a good deal of comfort by allowing natural breathing through the nose. Excellent results are also obtained by

the use of the various menthol and albolene preparations. Some people prefer warm salt water (one teaspoonful of table salt to a pint of water). Probably the safest way to use these various solutions is in the form of a spray. When employed as a douche they must be snuffed up very carefully and whatever fluid remains in the nose must be expelled by gentle blowing. Violent blowing of the nose is a pernicious habit at any time and is particularly injurious in the case of patients with chronic rhinitis. The simple measures above mentioned can be used at home, but many people with a well established case of rhinitis will need treatment by a specialist, who can often cure the condition entirely by local applications or some minor surgical operation.

Atrophic Rhinitis.—Atrophic rhinitis must also be looked upon as a sequel of preëxisting inflammation, and may follow chronic rhinitis. It is apt to occur in young people and is one of the most disagreeable ailments that a person can be afflicted with. The most conspicuous symptom is the foul fetid odor which is readily noticeable on the patient's breath. The mucous membrane of the

nose is very thin and dry and covered with scabs of secretion. These crusts are very hard to remove and nose bleeding often follows attempts to clean the passage by blowing. The foul odor comes from the character of the secretions and is probably dependent on the type of germs responsible for the infection. This condition requires special treatment which can be supplemented by douches and sprays at home.

Chronic Pharyngitis.—Nothing more or less than chronic sore throat, this is sometimes spoken of as “smoker’s throat,” or “clergyman’s sore throat.” In these particular instances it is the result of repeated irritation which gradually sets up a chronic inflammation of the mucous membrane of the throat. Many of these cases are secondary to disturbances of digestion, while others are caused by disease or deformity in the nasal passages. Persons who have frequent attack of acute sore throat may finally develop a chronic pharyngitis. In chronic pharyngitis the mucous membrane becomes dry and glazed and mucus accumulates on the back of the throat. This disease is really a continuation of chronic rhinitis from the

nose into the throat. Not infrequently the Eustachian tubes become blocked and the patient complains of a disagreeable fullness in the ears. The victims are burdens to themselves and sources of annoyance to their neighbors on account of the constant hawking and clearing efforts demanded by the viscid secretions. There is no doubt that this rasping of the throat is quite unnecessary and often does more harm than good. The desire to hawk, therefore, should be resisted as much as possible. This condition is best treated by local applications which must be applied in the doctor's office. The treatment, however, can be supplemented by cleansing douches with warm salt solution or boric acid. Many physicians look upon chronic catarrh of the throat as a manifestation of a gouty or rheumatic tendency and treat these patients as they would treat a case of gout or rheumatism. It is certainly important to correct any intestinal indigestion and to limit the use of tobacco and alcohol.

Acute Laryngitis.—Acute laryngitis is a very uncomfortable though usually short lived complication of cold in the head. The infection spreads

into the larynx and involves the vocal cords, which become so swollen and inflamed that the patient often finds it impossible to speak above a whisper. In addition to the hoarseness there is considerable pain and discomfort in the throat and neck and a peculiar croupy cough which is accompanied by little or no expectoration. The prime essential in the treatment of laryngitis is to give the voice complete rest. Talking even in a whisper should be forbidden. Hot poultices on the neck and steam inhalations, as discussed in Chapter IX, give the patient much relief. Recovery is hastened by local applications to the larynx which must, of course, be applied by a nose and throat specialist.

Bronchitis.—When infections spread from the nose and throat into the bronchial tree we have a condition known as bronchitis, which may be either acute or chronic.

Acute bronchitis occurs in varying degrees of severity. The great majority of colds affect the upper part of the trachea with the production of a mild grade of laryngitis, and the further down the bronchial tree the infection extends the more severe are the symptoms. Every one knows that a “deep

cough" makes him feel much worse than a "hacking cough" from the upper part of the trachea. In the mild grade of acute bronchitis the patient is conscious of a slight tightness in the chest just beneath the breast bone, but there is no fever and the patient continues about his work without much discomfort. Cough is the most prominent symptom. At first it is dry and unproductive, but after a few days it loosens up and each fit of coughing brings up mucopurulent material. Gradually the expectoration becomes less in amount and after a week or so the patient is well.

Coughing is an effort on the part of nature to expel foreign matter from the air passages. In the case of inflammation of the bronchial tubes and such serious conditions as pneumonia and tuberculosis the cough which expels foreign matter is the chief agent of relief. If it were not possible to get rid of the secretions in this way the patient would be in a very serious condition, and so long as the cough results in getting rid of foreign substances it should not be discouraged, and soothing medicines are not recommended.

There is another type of cough as exasperating

to the sufferer as to the listener, that serves no good purpose. It is frequently due to irritation of the nerve ends which become pinched by the congested swollen mucous membrane. It is quite possible to *bring on* this condition by coughing, which may be the result of hysteria or nervousness, as witness the theater cougher who is frequently unable to suppress a rasping cough for no other reason than that he feels the necessity to suppress it. This type of hysterical cough will bring on congestion and thickening of the vocal cords, a very trying and irritating condition. A chronic cough, however, should always be regarded with suspicion.

In the more severe cases of bronchitis the infection extends down into the small branches of the bronchial tree and the patient becomes really sick. There is frequent coughing which often occurs in paroxysms that cause a great deal of discomfort, more or less pain in the chest, fever, chilly sensations, and weakness. The patient willingly goes to bed and stays there for several days, sometimes longer, depending upon the duration of the attack.

Colds which invade the bronchi are always more serious than simple colds in the nose and great

precautions should be taken against the possibility of pneumonia. Even in mild cases the patient should stay in the house and preferably in bed during the first few days of a bronchial attack. If there is fever and much discomfort the family physician should be called. He will prescribe a cough remedy and by examining the chest determine just how extensive the infection is.

Pneumonia.—Pneumonia is the most serious of the complications of the common cold. It is such an important subject that it will be considered in a separate chapter.

CHAPTER VIII

PNEUMONIA

PNEUMONIA is the most serious of the complications of the common cold, indeed one of the most serious infections that man is heir to. Furthermore, it appears to be on the increase rather than the decrease. Tuberculosis, long known as the most devastating of infectious diseases, is on the wane, as are diphtheria, typhoid fever, dysentery, and many other serious infections. In the cases of pneumonia, however, the incidence and death rate in the United States have remained persistently high—for the simple reason that no satisfactory method has yet been devised for its control.

Pneumonia sometimes strikes down a perfectly healthy person, but fully 75 per cent of all pneumonias are secondary to a cold or some other mild infection of the respiratory tract. The fight against pneumonia, therefore, is intimately bound up with

the fight against colds. Primarily it is a disease of cities. It does occur in the country but it is much more common in congested districts where germs are readily passed from one person to another. There is an interesting relation between age and the death rate in pneumonia. In children the disease is nearly always mild; its seriousness increases with each decade of life so that people in the seventies or eighties have a comparatively small chance of recovery.

The great majority of pneumonias are caused by a germ known as the pneumococcus. There are four different varieties of pneumococcus. These four types differ considerably in their virulence, that is, in their attacking power. Type III is the most malignant, and Type IV the most benign. Types I and II are serious enough but not quite so dangerous as Type III.

Many healthy people carry the pneumococcus germ in their throats all the time, but when it exists as a normal inhabitant of the throat, it is usually not virulent enough to cause pneumonia. The pneumococcus which actually causes pneumonia is picked up for the most part from the atmosphere

or it is carried to the mouth by some other means such as kissing, contaminated hands, etc.

Once the pneumococcus gets in the throat it may or may not cause pneumonia, depending on the resisting power of the person who picks it up. If he has a bad cold, or if his resistance has been lowered by fatigue, alcohol, or other indiscretions, the pneumococcus finds the soil right, works its way down into the lungs and pneumonia follows.

The structure of the normal lung is very much like that of a dry rubber bath sponge. As explained in the chapter on structure and function, these tiny pores are connected with the terminal branches of the bronchial tree, and it is in these pores that the exchange of oxygen and carbon dioxide takes place. In pneumonia the lung is more like a sponge that has been soaked with mud. The air cells are filled with pus and the lung is no longer of spongy consistence but is solid like a piece of liver and would sink if thrown into water. It is this filling up of the lungs with pus that causes the patient to have difficulty in breathing.

Pneumonia usually starts with a chill which is followed by fever ranging from 102° to 104° or

even more. About the same time the patient develops a hacking cough and sharp pain in the side. The temperature usually remains high and after a few hours the patient begins to cough up reddish or rusty phlegm. The cough and high fever continue for seven to eight days and then a very striking phenomenon, known as the crisis, occurs. The temperature drops suddenly from 104° or 105° to normal. The patient has a profuse sweat, immediately feels better and his life is then usually out of danger. Unfortunately the crisis does not always occur. In these cases the temperature remains high, the pulse gets weaker and weaker and the patient dies. In city hospitals the death rate for pneumonia is very high, ranging from 30 to 35 per cent. Among the well-to-do who are well nourished and in good physical condition, however, the death rate is considerably lower.

Treatment of Pneumonia.—Pneumonia is a disease that because of its seriousness requires the most careful and skillful medical attention. The nursing is particularly important as the patient requires constant watching and almost continuous service. Drugs are little used in the modern treat-

ment. The heart is stimulated if necessary and various medicines are employed to ease the cough and quiet the patient.

Within the last few years the serum treatment of pneumonia has been successfully developed. Several serums are now available and almost every year some advance is made in the serum treatment of this dreaded disease. Serum, particularly if administered early, has been proved to be very successful in certain types of the disease. Types I, II and IV are particularly susceptible to serum treatment. It has been shown that not only is the death rate materially reduced where serum treatment is used but the course of the disease is shortened so that the convalescence of the patient is much more rapid. The author has seen cases of pneumonia, particularly Type I infections, where the temperature has dropped to normal within a few hours after receiving serum treatment.

The Prevention of Pneumonia.—Three-fourths of all pneumonias are secondary to colds so it is obvious that the best way to avoid pneumonia is to avoid colds. In Chapter X, on the prevention of colds, we have described the various methods now

recommended by physicians and public health officers for the prevention of these infections, so that subject will not be gone into at the present time. Briefly, however, the prevention of colds may be summarized as follows:

Keep dry, keep warm, avoid drafts, take regular exercise, harden the skin by means of cold baths, and be sure that there are no local disorders such as diseased tonsils or infected sinuses at any point in the respiratory tract.

The second important principle in the prevention of pneumonia is to be moderate in the use of alcohol. Over-indulgence in alcohol not only renders a person more susceptible to pneumonia but decreases the chances of recovery in an unmistakable way. In the large city hospitals the death rate for drunkards who develop pneumonia is very, very high, probably 50 to 75 per cent, and even moderate drinking distinctly affects one's chances in fighting the disease.

Pneumonia is fairly common among sailors, day laborers, and other classes of industrial workers who are continually exposed to the elements. It is probably not the actual exposure which does

them harm but the fact that they are working outdoors, become overheated, and cool off too rapidly. Over-fatigue is another important factor. A laborer or athlete completely exhausted by work or strenuous exercise is a fit subject for the pneumococcus if he becomes chilled while in this exhausted state. In the same way people whose vitality is for any reason low are good subjects for pneumonia; and those who are anemic or suffering from chronic heart or kidney disease, cancer, etc., are more liable to contract pneumonia than perfectly healthy individuals.

One of the most interesting facts about pneumonia is its tendency to recur. Some people have pneumonia winter after winter; in this respect it differs from most other infectious diseases in which one attack gives a lifelong immunity. The attacks, however, rarely come at closer intervals than one year, and an attack of the disease undoubtedly confers a high immunity for a short time. Those who are liable to these recurrences may have recourse to pneumonia vaccine, which has proved to be of distinct value in preventing the disease. Three injections are given in the arm, very much as

typhoid vaccine is given, and the immunity conferred by this procedure probably lasts six months to a year.

Pneumonia vaccine was used extensively in the American army during the World War, particularly on raw recruits who came into the camps soft and unaccustomed to the exposure and hardships of army life. As every one knows, pneumonia was very common among these recruits, but at Camp Upton and some of the other camps where thousands were vaccinated against pneumonia the incidence of the disease was considerably reduced.

CHAPTER IX

TREATMENT OF COLDS

THE common cold or cold in the head usually runs a definite course of five to ten days. If the nasal discharge persists longer than this it usually means that one of the sinuses has become infected. While it is true that the common cold is a disease from which the patient practically always recovers spontaneously there are many reasons why the disease should not be allowed to run its course without some effort to curb the extent and duration of the infection. The treatment for contagious and non-contagious colds is practically identical, but contagious colds are usually more severe than non-contagious colds and often require medical attention. We can divide the treatment of all colds into two phases: (1) Treatment in the early stage; and (2) Treatment in the later stage.

The object of treating a cold in the early stage is either to abort it completely or to limit its ex-

tent to a small part of the respiratory tract. The former, of course, is the more satisfactory achievement, but it is not always possible to abort a cold once it is well started on its way. The abortive treatment may be constitutional or local. The most popular constitutional treatment has always been some method of making the patient sweat, and this may be achieved in various ways. Modern medicine has discovered nothing better than the "old-fashioned" abortive treatment popular with our grandmothers, which may be carried out as follows:

The patient takes a hot bath or a hot foot-bath which should be continued for twenty to thirty minutes. He then drinks a hot lemonade to which may be added a tablespoonful of brandy or whisky, and follows that with a ten-grain Dover's powder. Then he goes to bed with two or three extra blankets over him. This treatment is still popular in many families and deservedly so, for it often happens that the patient who has gone to bed the night before with a running nose and other symptoms of an oncoming cold, awakens in the morning completely free from symptoms. One

mistake is sometimes made in carrying out this régime. There are those who think that the proper way to apply this treatment is to get thoroughly under the influence of alcohol, even to the point of getting actually intoxicated. Undoubtedly a good drink in the form of a "hot toddy" helps to bring on perspiration, and to this extent may be beneficial, but we must remember that the overuse of alcohol really lowers the resistance against germs and actually predisposes to lobar pneumonia. In the attempt to cure the cold with an excessive amount of alcohol the patient jumps "from the frying pan into the fire" and finds himself worse off than ever. We see many cases of pneumonia in Bellevue Hospital that give such a history. The laboring man gets a bad cold; he goes home and gets drunk, probably using the cold as an excuse for a natural inclination. The next morning the cold is still with him, but he gets up, takes another big drink and goes to work with his resistance considerably lowered by excessive indulgence in alcohol; then the pneumonia germs get to work.

The Turkish bath is a favorite method of abort-

ing a cold with many people. A much more profuse perspiration can be obtained by the Turkish bath than by the methods just described, but there is a certain amount of risk of contracting fresh cold as it necessitates a trip to an institution and exposure to the cold outdoor air after the bath has been taken.

“Counterirritation” to the throat is another method of aborting a cold. This may be successfully applied in the form of hot applications to the throat, or by frequent gargling with hot water.

Some authorities claim that a cold can be aborted by vigorous massage of the nose, throat, and neck. This is a rational method of applying counterirritation and is well worthy of trial. The author, however, cannot give it his personal recommendation, as he has had no experience with it.

Various drugs have been used in the early treatment of colds with the idea of checking the infection. Aspirin, pyramidon, and quinine are among the most popular. Some claim to abort colds completely with aspirin, but in these cases the pain-killing effect of this drug is apt to be mistaken for a cure. The same is true of phenacetin, pyram-

idon, and other members of the so-called coal tar derivative group. These drugs all cause a certain amount of perspiration and make the patient feel more comfortable and may therefore be used, preferably under the direction of a physician.

There is another group of drugs extensively employed for producing a shrinking of the mucous membrane and thereby checking the profuse nasal secretions. One or more of these drugs, the more important of which are cocaine and adrenalin, are found in practically all the commercial cold cures. They give relief to the patient by allowing more breathing space and diminishing the mucous discharge and there is no reason why they should not be used. There is an element of danger, however, in cocaine on account of its habit-forming tendency and for this reason prescriptions which contain this drug are not recommended. An adrenalin spray gives great relief, but the effect unfortunately is only temporary. Atropin and camphor are other drugs found in nearly all the commercial cold cures. Both of these tend to dry up secretions from the mucous membrane and because of this faculty they give the patient some re-

lief. They have very little effect, however, on the swollen mucous membrane and it is doubtful whether they are really worth while. Rhinitis tablets, which are extensively used by the layman, contain one or more of these drugs. They may give temporary relief, but in the experience of the author they are rarely of any permanent value.

Once the infection is established, the main object of treatment is to make the patient comfortable and remove from the nose the excessive secretions which interfere so much with proper breathing. One of the best cleansing solutions is ordinary salt water (a teaspoonful of table salt to a pint of warm water). The patient sits or stands with the head well thrown back. The warm water is allowed to run into the nostrils from a small nasal douche, or "duck" as it is sometimes called. When the water is felt in the throat the head is thrown forward and the fluid allowed to run from the nose and throat. The nose may then be blown gently, one nostril at a time, in order to force out the secretions and water still remaining. There is a small element of danger in this form of treatment, however; if the nose is blown too hard there

is danger of forcing some of the fluid into the sinuses or into the Eustachian tubes and causing a spread of the infection. For this reason the nasal douche must not be followed by vigorous blowing; in fact, vigorous blowing of the nose at any time is dangerous. Perhaps the most efficient way of using the nasal douche is by means of the "nasal irrigating douche," which can be purchased in any drug store. This is a pint bottle with a spigot and rubber tube attached to its base. The bottle is filled with warm water and a teaspoonful of salt added. It is then placed on a shelf or held in an elevated position by a nurse or assistant, while the patient holds his head over a wash basin and allows the warm salt water to run in one nostril and out the other. The fluid coming in under pressure thoroughly cleans the mucous membrane and gives the patient a sense of great relief. This procedure can be repeated two or three times a day if necessary. Argylol 15 to 25 per cent is very soothing to the nose and throat and can be used as a gargle or spray, or applied to the mucous membrane with a cotton swab.

An oil spray containing menthol, camphor, and

eucalyptol is also very soothing to the inflamed mucous membrane. Many patients are much relieved by steam inhalations, several different substances being used, the most popular of which is the compound tincture of benzoin, the oil of pine, or menthol. One or two teaspoonfuls of the oil are added to a pint of hot water and the steam vapor is inhaled. Special inhalers are made for this form of treatment, but the simplest and most accessible is an ordinary coffee-pot. A towel or sheet is placed over the head and shoulders to concentrate the vapor, and the patient then inhales the steam for fifteen or twenty minutes. The water can be kept near the boiling point by a small electric heater or an alcohol lamp. For sore throat some form of menthol brings relief to the patient and the inhalations recommended for cold in the head are also very soothing.

Every person with a cold would be better off and his cold would run a shorter course if he remained in bed. Furthermore, if one remained in bed one would be far less likely to spread the infection to other people. This, however, entails many practical difficulties and very few people can or

will follow this rule unless they feel really ill. The cold sufferer should at least remain indoors. Cold fresh air is a fine prophylactic against colds, but once the cold is contracted warm air is essential. This does not mean, however, that there should be no ventilation in the sick room. Good ventilation is even more important for the sick than for the well.

In mild colds diet does not play a very important part in the treatment. The patient may eat moderately of any wholesome food and feel none the worse for it. In severe colds accompanied by fever the diet should consist of liquids and soft, easily digested foods. The old proverb "stuff a cold and starve a fever" is unsound in that a cold should not be fed any more than is necessary. Whatever food is taken should be simple and nutritious. All rich and highly seasoned foods should be avoided and the bowels should be kept open with Epsom salts or some other mild laxative.

Some physicians advocate the use of vaccines in the treatment of colds. It is true that in some cases an injection of vaccine will have a very

beneficial effect on the cold, causing marked improvement in symptoms a short time after the injection. In other cases, however, the vaccine has no effect. The whole question of vaccines in the treatment of colds is still in the experimental stage, but we may confidently hope for important developments in this form of treatment.

The Chlorin Treatment of Colds.—The attention of Colonel E. B. Vedder of the U. S. Army Medical Corps was attracted to chlorin gas as a treatment for colds during the World War, when it was noticed that during the great influenza epidemic no cases of influenza occurred among the workers in the chlorin plant at the Edgewood Arsenal, although every other organization in the arsenal had its full quota of cases. Colonel Vedder found that chlorin gas at certain concentrations would kill bacteria if allowed to act on them for one to two hours. He then allowed human beings to inhale chlorin gas at this same concentration and proved that they could do so without exciting marked irritation of the mucous membranes. The actual concentration used was 0.015 milligram of chlorin gas per liter of atmospheric

air. Patients with colds were then put in a small chamber and allowed to inhale chlorin gas at this concentration. Some of the patients received a second and even a third treatment on succeeding days. The results obtained were highly gratifying. In a large series of acute colds treated by Colonel Vedder 74 per cent were cured and 25 per cent improved. Similar or even better results were obtained in laryngitis, bronchitis, whooping cough, and influenza. Colds that were treated early were nearly always completely aborted. There was more difficulty in treating well developed head colds, as the swelling of the mucous membrane stopped up the passages and prevented the free access of chlorin.

Two types of machines are now on the market for carrying out chlorin gas treatment. In one type the chlorin gas is allowed to escape into a small room until the atmosphere contains the proper concentration. This method is troublesome and inaccurate and the chlorin gas is very hard on furniture and plumbing. In the other type of machine the patient receives the gas through a paper funnel which contains the proper concen-

tration of chlorin and only a small amount of the chlorin gas escapes into the atmosphere of the room. This method is more convenient and more accurate and therefore preferable.

In order to obtain an expression of opinion from other doctors the writer recently sent out a questionnaire to more than two hundred physicians who had had experience with the chlorin treatment of colds. In this questionnaire he asked for their opinion on the merits of the chlorin treatment and to report, if possible, the actual number of cases treated and the percentage of these that showed improvement. Of one hundred and ninety replies received, 43 per cent reported good results, 27 per cent fair results, making a total of 70 per cent in which the report was favorable. Of the remaining 30 per cent, 19 per cent were noncommittal, usually because their experience had been limited, and 12 per cent gave a frankly unfavorable report. The physicians who answered the questionnaire reported altogether 8,271 cases treated. Of these 5,576, or 66 per cent, were cured or improved by chlorin treatment, while 16.5 per cent showed no noteworthy improvement. In the remaining cases,

17.5 per cent, the effect of the chlorin treatment for some reason or other could not be determined.

The combined results of these physicians are not so good as those reported by the originators of this form of treatment, who have reported altogether about 2,000 cases of acute respiratory infection treated by the chlorin gas method, with 90 per cent cured or improved.

In contrast to these favorable statistics is a report recently published by Dr. L. I. Harris, who has been conducting a chlorin gas clinic in connection with the Health Department of New York City. According to this report only 6.5 per cent of 506 persons with various respiratory infections reported themselves as cured. Fifty-three per cent of the patients treated in the New York Clinics reported improvement, but Dr. Harris did not attach much importance to such reports, since it is well known that patients with minor respiratory infections tend to improve within certain limitations from the very nature of such diseases.

It is obvious from these conflicting reports that no final opinion can be formed as to the value

of the chlorin gas treatment until the results of numerous investigators have been correlated.

The author has had a limited experience with this method and hesitates to pass judgment on it. From tests on myself and others, however, I am disposed to believe that the chlorin treatment may prove to be of help in some of the early cases, but of doubtful value in those that have progressed to the more advanced stage. This impression is corroborated by the experience of others.

Summary on Treatment of Colds:

1. Rest in bed or at least indoors.
2. Take a hot bath or a hot foot-bath, a Dover's powder, and a hot drink, and sleep under two extra blankets.
3. Avoid any exposure to cold.
4. Take five or ten grains of aspirin to relieve discomfort and repeat after three or four hours if necessary.
5. Try to check the infection by local applications of 25 per cent argyrol. Take some mild laxative.
6. Stick to a simple diet.

7. If you feel feverish call in the family physician.

8. Do not resume routine activities of life until your cold is over.

9. If the cold hangs on after a week or ten days consult a nose and throat specialist.

CHAPTER X

PREVENTION OF COLDS

THE successful prevention of any disease depends upon removal of the cause. In the case of colds we have seen that there are two groups of causes; the predisposing causes, which affect the patient's resistance, and the exciting causes—the bacteria—which are directly responsible for the infection.

The prevention of non-contagious colds is dependent largely upon the removal of predisposing causes. As long as the individual and his mucous membrane are perfectly healthy he is not likely to be attacked by the non-contagious cold. In Chapter III it was explained that anything which irritates the mucous membrane of the nose and throat predisposes the patient to a cold. Therefore, one of the first things to do is to eliminate any possible sources of irritation. If the sufferer is a heavy smoker it is very important to regulate the

amount and kind of tobacco smoked. Too many cigarettes is one of the commonest predisposing causes, and the number should be either materially reduced or they should be discontinued altogether. Strangely enough, sometimes merely changing the brand of cigarette will entirely relieve the feeling of roughness in the throat. Dust is another trouble maker. Many people have a severe cold every fall when they return to the city after the summer vacation. The sudden change from the pure country air to the dry, dusty atmosphere of the city excites congestion in the nose and throat and the bacteria do the rest! Since dust is something that is almost impossible to avoid unless one elects to be at sea, there is no artificial method of preventing colds that are caused by dust irritation. Nature, however, has provided us with our own defense. As explained in Chapter II, the nose is equipped with fine cilia which filter the air before it enters the lungs and if mouth breathing is scrupulously avoided colds from this cause are rare.

Guard against poorly ventilated, overheated, or underheated rooms. Remember that most colds

are caught *indoors*, not outdoors. Overheated rooms are to be avoided, as the hot air dries up the secretions on the surface of the nose and throat and renders them susceptible to bacteria. American houses are proverbially overheated and this is doubtless one of the reasons why so many Americans suffer from acute respiratory infections. Even in cold weather it is well to keep one window slightly open in order that cool fresh air may be constantly circulating through the room, and a bowl of water placed under the radiator will do much toward improving the atmosphere and keeping it moist.

The question of clothing is, of course, an important factor in the prevention of colds. Too much clothing is not recommended, but personally I am of the opinion that a great many more colds are caused by insufficient clothing than by too much. It is true that heavy underwear conduces to excessive perspiration when one's time is spent in overheated rooms, but it is obvious that a person who sits in a motor or street car, exposed perhaps to a draft, clad in clothing that is inadequate to the demands of the temperature. is much more

liable to contract a cold than the man a little too warmly dressed. It is equally evident that in a climate such as ours, where the houses are so well heated, heavy garments should be removable indoors, the greatest warmth in our clothes being in overcoats rather than in underwear.

The layman often fails to realize what a menace fatigue is to his general good health. This applies to both the acute and chronic forms of fatigue. I know people who never get cold except when they are in a state of physical exhaustion. Chronic fatigue is even more insidious than the acute variety, for the reason that the victim is often entirely unconscious of it. Working over hours, retiring late every night, combined with worry and lack of recreation and outdoor exercise gradually reduce one's resisting power until a point is reached where one is easy prey for the cold germs, or, worse still, the microbes of pneumonia or tuberculosis. Therefore, avoid fatigue if you would avoid infections.

It has been explained that some non-contagious colds have their origin in faulty digestion, the precursor of many serious ailments. The diges-

tion therefore should be carefully studied, and sweets should be cut down to a minimum. If there is any tendency to constipation the condition should be treated at once, for there is no doubt that constipation is an important factor in many colds. If constipation is persistent the family physician should be consulted.

Every physician knows that nervous people are more susceptible to colds than those of phlegmatic temperament. It is evident, therefore, that a well regulated nervous system will help to keep out the cold germs. Exercise, outdoors if possible, or failing that, indoor exercise of some form, is of the greatest value in tuning up a relaxed nervous system, and will do more than any other single factor toward improving the general circulation. It is impossible to avoid colds as long as the circulation is sluggish, no matter how well ordered the rest of the body is.

Except in the case of trained athletes, however, physical exercise should be taken in moderation. Fifteen or twenty minutes devoted to morning calisthenics that contract and stretch all the muscles, particularly the larger muscles of the abdomen and

back, daily walks in the fresh air, one or two rounds of golf a week, or better still a ride on horseback will answer the purposes for the average man or woman. Every one realizes that games are more interesting and, therefore, more beneficial than monotonous gymnastics, for the reason that they refresh the mind as well as the body. The first danger from over exercise is fatigue, which, as already pointed out, produces a temporary drop in one's resisting power and, therefore, frustrates the main object of exercise, which is to keep the body in a fit condition.

Closely allied to a good circulation is a healthy and hardy skin. The best skin tonic is a cold shower bath followed by brisk rubbing with a Turkish towel. As a rule it is preferable to begin with a hot bath and finish with a cold shower, but when you do get under the shower let the cold water run until the skin is thoroughly chilled. A cold shower is best taken in the morning immediately after rising, but there is no objection to postponing it to evening if preferred. After the cold bath the skin should be rubbed briskly and fairly vigorously, taking care, however, not

to rub away too much of the superficial skin and produce chafing.

General massage is a good tonic to both skin and circulation if skillfully administered, and, provided the patient can afford such a luxury, should be given a trial.

Many physicians are now using a new method of hardening and toning up the skin with very excellent results, the so-called "Alpine" or ultra-violet light. This light, when allowed to shine for a few moments on the skin, produces an artificial sunburn equal to nature's best efforts. Repeated exposures to the ultraviolet rays result eventually in a beautiful coat of tan, and as the skin becomes tanned, it becomes more indifferent to variations of heat and cold. In other words, a tanned skin appears to stand a draft better than a pale skin.

The next important step in removing the predisposing causes of colds is a visit to a nose and throat specialist who determines whether there is any obstruction or chronic infection in the upper part of the respiratory tract. He makes a special inspection of the tonsils, the throat, the nose, and

the sinuses. He also looks at the ears and the Eustachian tubes for possible foci of infection. If he finds nasal obstruction, enlarged tonsils, or infection at any point he will recommend the requisite treatment and the patient, if he is looking for permanent relief, should submit to the treatment advised even if it involves some minor operation.

There are some people, however, who continue to have frequent colds in spite of the most stringent precautions. If there is no evidence of exposure to infection from outside we assume that they are mostly of the non-contagious variety and that the patient is being infected with his own germs. A method that has been successfully used in recent years by many physicians, including the author, is to immunize the patient with a vaccine prepared from the bacteria in his own throat. Such a preparation is known as an autogenous vaccine and its object is to strengthen the patient's immunity against the bacteria which cause colds.

The principle of vaccination has, of course, been successfully applied for years to many infections, but it is only in recent years that vaccines have

been administered for the prevention of comparatively minor ailments like colds. The inoculations are given hypodermically once every week or ten days through the winter and spring months. They must, however, be kept up without interruption, for if they are discontinued the immunity which they confer soon vanishes, probably in two or three weeks.

The reason it is necessary to give such frequent inoculations is clear enough when we remember that the cold itself will give only a temporary immunity, usually not more than five or six weeks. Smallpox, on the other hand, is a disease in which one attack confers a lifelong immunity, hence the long protection conferred by smallpox vaccine. It must be understood that these cold vaccines are no miracle workers. If there is some chronic infection such as a diseased tonsil or some mechanical obstruction in the nose or throat the vaccine will probably be less effective; neither is it an absolute guaranty against obvious indiscretions in the matter of diet, clothing, exercise, or fresh air. Where the patient's chief difficulty is a lack of immunity against his own germs, then vaccines

will prove of great benefit in preventing the infections, and if, in spite of vaccination, occasional infections do occur they will run a short and mild course.

It is questionable how much protection autogenous vaccines give against contagious colds or influenza. The germs which cause these contagious diseases come from without and are probably of a different character from those which inhabit the mouth. The surest way to avoid contagious colds is to keep away from people who have colds. The greatest danger probably comes from close contact with infected persons in the home and in theaters, churches, trams, and subways.

Those who are particularly susceptible to colds by contagion can reduce the chance of infection by using some mild disinfectant in the nose and throat twice a day. The application is made with a spray or by snuffing the solution into the nose from one of the small nasal douches which can be purchased in any drug store. Dobell's solution diluted with an equal amount of warm water is an excellent preparation; warm water containing a pinch of salt or cooking soda is also recommended.

There is some evidence to show that the frequent inhalations of chlorin gas in dilute form will prevent colds. It is said that persons who work in chlorin manufacturing plants are entirely free from colds. The chlorin gas treatment has been described more fully in Chapter IX on the Treatment of Colds. It is the opinion of many that chlorin will have even more effect as a prophylactic than as a curative agent.

From this discussion it will be seen that the successful prevention of colds depends on a good many different factors all of which have to be considered when we attack the problem. A sound, healthy, vigorous body and a clean, smooth-working respiratory apparatus are the main essentials. There is always some reason for these repeated infections of the nose and throat. It is the problem of the physician to discover the cause and eliminate it.

Summary of Prevention of Colds.—The various measures for the prevention of colds may be briefly summarized as follows:

1. Get lots of fresh air, but avoid drafts. Sleep with windows open.

2. Practice deep breathing exercises.
3. Avoid overeating, especially sweets.
4. Avoid constipation.
5. Take plenty of exercise, indoors and outdoors.
6. Avoid undue fatigue.
7. Do not put fingers in nose or mouth, and be careful to wash the hands before eating.
8. When necessary keep the nasal passages clean and moist with some sort of mild spray or douche.
9. Train the skin to resist variations in temperature by means of cold baths, massage, and vigorous rubbing.
10. Adapt clothing to the temperature of the day. Do not vary the clothing next to the body but have wraps of various weights.
11. Consult the nose and throat specialist to make sure there are no obstructions or infections.
12. If colds still persist try prophylactic vaccine.

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